EVOLUTION

INTERNATIONAL JOURNAL OF ORGANIC EVOLUTION

Volume III, 1949

Published Quarterly

At Prince and Lemon Streets, Lancaster, Pa.

By the

Society for the Study of Evolution

TABLE OF CONTENTS

Number 1, March

Moore, John A. Geographic variation of adaptive characters in *Rana pipiens* Schreber 1
Moody, Paul A., Velma A. Cochran, and Helen Drugg. Serological evidence on lagomorph relationships 25
Stenzel, H. B. Successional speciation in paleontology: The case of the oysters of the *sellaeformis* stock 34
Haldane, J. B. S. Suggestions as to the quantitative measurement of rates of evolution 51
Lack, David. Family size in certain thrushes (Turdidae) 57
Spieth, Herman T. Sexual behavior and isolation in *Drosophila*. II. The interspecific mating behavior of species of the *willistoni* group 67
Grant, Verne. Pollination systems as isolating mechanisms in angiosperms 82
Freire-Maia, Newton. Balanced polymorphism in *Drosophila montium* .. 98
Stebbins, G. Ledyard, Jr. Asexual reproduction in relation to plant evolution 98

Number 2, June

Newell, Norman D. Phyletic size increase—an important trend illustrated by fossil invertebrates 103
Hooijer, D. A. Mammalian evolution in the quaternary of southern and eastern Asia 125
Michener, Charles D. Parallelisms in the evolution of Saturniid moths .. 129
Elliott, Fred C. *Bromus inermis* and *B. pumpellianus* in North America 142
Ripley, S. Dillon. Avian relicts and double invasions in peninsular India and Ceylon 150
Haskins, Caryl P., and Edna F. Haskins. The role of sexual selection as an isolating mechanism in three species of Poeciliid fishes 160
Hovanitz, William. Interspecific matings between *Colias eurytheme* and *Colias philodice* in wild populations 170
Bateman, A. J. Analysis of data on sexual isolation 174
Simpson, George G. Essay-review of recent works on evolutionary theory by Rensch, Zimmermann, and Schindewolf 178
Clausen, Jens. Evolutionary patterns in the genus *Crepis* 185
Stebbins, G. L., Jr. Speciation, evolutionary trends, and distribution 188

Number 3, September

Bogert, Charles M. Thermoregulation in reptiles—a factor in evolution.. 195
Crosby, Jack L. Selection of an unfavourable gene-complex 212
Miller, A. K. The last surge of the nautiloid cephalopods 231
da Cunha, A. Brito. Genetic analysis of the polymorphism of color pattern in *Drosophila polymorpha* 239
White, M. J. D. Cytological evidence on the phylogeny and classification of the Diptera 252
Dice, Lee R. The selection index and its test of significance 262
Merrell, David J. Mating between two strains of *Drosophila melanogaster* 266
Wheeler, Marshall R. The two "varieties" of *Drosophila montium* 268

MAY 1 - 1950

NUMBER 4, DECEMBER

PETERSON, BJÖRN. On the evolution of *Pieris napi* L. 269
CLAY, THERESA. Some problems in the evolution of a group of ectoparasites 279
BURLA, H., A. BRITO DA CUNHA, A. R. CORDEIRO, TH. DOBZHANSKY, C. MALOGOLOWKIN, and C. PAVAN. The *willistoni* group of sibling species of *Drosophila* 300
LEVENE, HOWARD. A new measure of sexual isolation 315
CARSON, HAMPTON L., and HARRISON D. STALKER. Seasonal variation in gene arrangement frequencies over a three-year period in *Drosophila robusta* Sturtevant 322
STALKER, HARRISON D., and HAMPTON L. CARSON. Seasonal variation in the morphology of *Drosophila robusta* Sturtevant 330
SMITH, STANLEY G. Evolutionary changes in the sex chromosomes of Coleoptera. I. Wood borers of the genus *Agrilus* 344
ROLLINS, REED C. Sources of genetic variation in *Parthenium argentatum* Gray (Compositae) 358
BURMA, BENJAMIN H. The species concept: a semantic review 369
MAYR, ERNST. The species concept: semantics versus sematics 371
BABCOCK, ERNEST B. Supplementary notes on *Crepis* II. Phylogeny, distribution, and Matthew's principle 374
DOBZHANSKY, TH. Towards a modern synthesis 376
CASPARI, ERNST. A synopsis of contemporary evolutionary thinking 377
WHITE, M. J. D. Chromosomes of the vertebrates 379
MAYR, ERNST. Comments on evolutionary literature 381

INDEX TO VOLUME III, 1948

Acanthion brachyurus, 127
Adolph, E. F., 384
Agrilus, 344–357, *anxius*, 345
Aksiray, F., 383
allometry, phyletic, 104
allomorphosis, 104
allopatric speciation, 92
Amblycera, 279
Ammonoidea, 118 (fig.), 119, 236
ammonites, 114
analysis of data on sexual isolation, 174–177
angiosperms, 82–97
apomixis, 363, 366; in higher plants, 98
Arthropoda, 116
asexual reproduction in relation to plant evolution, 98
Aturia, 236 (fig.); *angustata*, 232 (fig.)
Aturoidea, 236 (fig.); *olssoni*, 232 (fig.)
avian relicts and double invasions in peninsular India and Ceylon, 150–159
Babcock, Ernest B., 374–376
Bateman, A. J., 174–177
behavior, sexual in *Drosophila*, 67–81; interspecific in *willistoni*, 67–81
Bergmann's rule, 117
bivoltinism, 269
Bogert, Charles M., 195–211
Brachiopods, 109
Brachycera, 255 (fig.)
Brinck, P., 382
Bromus inermis and *B. pumpellianus* in North America, 142–149
Bryozoa, 109
Burla, H., 300–314
Burma, B. H., 369–370, 372–373, 384
Calceolispongia, 112 (fig.)
Carpenter, G. D. H., 384
Carson, Hampton L., 322–329, 330–343
Caspari, Ernst, 377–378
Centropus, 156
Cephalopods, nautiloid, 231–238
Ceylon, 150
changes, evolutionary in sex chromosomes of Coleoptera, 344–357
characters, adaptive in *Rana pipiens*, 1–24; taxonomic in plants, 83 (fig.)
chiasmata, loss of in male, 255
Chironomus, 252
chromosomes, 346; of Coleoptera, 344–357; homologous, 140; salivary gland, 323; sex, 253
Chromosomes des Vertébrés, 379
Cimomia, 236 (fig.)
Clausen, Jens, 185–188
Clay, Theresa, 279–299
classification, of Diptera, 252–261
Cnemidophorus, 197
Cochran, Velma A., 25–33
coefficient, isolation, 317; of joint isolation, 319; of excess insemination, 319
Coleoptera, sex chromosomes of, 344–357
Colias eurytheme, 170; *philodice*, 170
competition, interspecific, 121; intraspecific, 49, 121
convergence in evolution, 129
Cope's law, 10
corals, 108
Cordeiro, A. R., 300–314
courtship, duration of, 266
Crepis, 374–376; evolution in, 185–188
Crosby, Jack L., 212–230
Cubitostrea divaricata, 45; *lisbonensis*, 40 (fig.); *perplicata*, 38 (fig.); *sellaeformis*, 34 (fig.); *smithvillensis*, 41 (fig.)
da Cunha, A. Brito, 239–251, 300–314
cytological evidence on the phylogeny and classification of the Diptera, 252–261
cytoplasmic effect, 176
darwin, definition of, 55
deer-mouse, 263
Deltoidonautilus, 236 (fig.)
Dempster, E. R., 386
Depéret, C., 103
development, rate of, 14, 20; temperature coefficient of, 21
Dice, Lee R., 262–265
Dicaeum, 158
Dicerorhinus sumatrensis, 126
differences, chromosomal in *D. willistoni* group, 303
Dinopium benghalense, 155
Diptera, cytological evidence of phylogeny and classification, 252–261
dispersal, 207
Dissemurus paradiseus, 155
distance pairing, 253
Dobzhansky, Th., 300–314, 376–377
Dowdeswell, W. H., 385
Drosophila, 67–81, 252; *atropyga*, 268; *capricorni*, 67; *equinoxialis*, 67, 302; *fumipennis*, 67; *melanogaster*, 266–267; *montium*, 239, 268; *nebulosa*, 67; *paulista*, 300; *paulistorum*, 300; original description of, 301; *persimilis*, 176; *polymorpha*, 239–251; *prosaltans*, 175, 320; *pseudoobscura*, 176; *robusta*, 322–329; *sucinea*, 67; *tropicalis*, 302; original description of, 302; *willistoni*, 67; chromosomal differences in, 303, 304 (fig.); maxillar palpi of, 307, 307 (fig.); sibling species of, 300–314; vaginal plates of, 308, 308 (fig.); *xanthopyga*, 268
drive, sexual, 71
Drugg, Helen, 25–33
Duplicidentata, 25
echinoderms, 111
ecology, 45

ectoparasites, 279–299; evolution of, 279–299
Elliott, F. C., 142–149
endothermy, evolution of, 206
Erithacus rubecula, 57
Eutrephoceras, 236 (fig.); *laverdei*, 232 (fig.)
evolution, convergence in, 129; in *Crepis*, 185–188; of a group of ectoparasites, 279–299; of endothermy, 206; mammalian in quaternary of southern and eastern Asia, 125–128; meaning of, 376; of *Pieris napi*, 269–278; rates of, 51–56
evolutionary change, standards of, 55
evolutionary literature, 381–386
evolutionary rates, in horses and dinosaurs, 52; in hominids, 54
extinction, 285
eyesize, reduction in, 141
family size in certain thrushes (Turdidae), 57–66
Fenestrellina, 109 (fig.)
Fisher, R. A., 385
fishes, Poeciliid, 160–169
Foraminifera, 105
Ford, E. B., 385
Freire-Maia, Newton, 98
frogs, meadow, 2
gene arrangements, 338
gene-complex, unfavorable, 212–230
genetic analysis of the polymorphism of color pattern in *D. polymorpha*, 239–251
Genetics, Paleontology and Evolution, 377
gigantism, 237
Gilia capitata, 88; *c. capitata*, 90; *c. chamissonis*, 88, 90 (fig.); *c. tomentosa*, 88, 90 (fig.)
Glaucidium radiatum, 154
Gracula, 157
Grant, Verne, 82–97
growth, phyletic, 104, 105, 116
guayule, 358
Gustafsson, Ake, 98
habitat selection, 205
Haldane, J. B. S., 51–56
Harding, J. P., 384
Hardy-Weinberg rule, 244
Harrison, J. H., 384
Haskins, C. P. and E. F., 160–169
Hawaiian honeycreepers, 87
Hercoglossa, 236 (fig.); *orbiculata*, 232 (fig.)
heterostyly, evolution of, 213
homoiothermic, 195
homostyly, 214
honeycreepers, 87
Hooijer, D. A., 125–128
host relationships, 279; specificity, 284
Hough, J., 381
hybridization, 170; introgressive, 359
hybrids, 144, 146, 176
hypermorphosis, 105
interspecific mating behavior of species of *willistoni* group, 67–81
interspecific matings between *Colias eurytheme* and *Colias philodice* in wild populations, 170–173
Intrasiphonata, 236
introgression, 148
Ischnocera, 279
isolating factors, 282
isolating mechanism, 148; in fishes, 160; floral, 82
isolation, 284, coefficient of, 317; in *Drosophila*, 67–81; ethological, 82; in butterfly and moth plants, 86; in bee and long-tongued fly plants, 90; index, 315; mechanical, 82; in beeplants and wasp plants, 87; in bird plants, 86; reproductive, 154; sexual, 174–177, 267, 310
invasions, double, 150–159
Jepsen, Glenn L., 377
Kosswig, C., 385
Kuhn, E., 382
Lack, David, 57–66
lagomorph relationships, 25–33
Lamprecht, H. L., 386
last surge of the nautiloid cephalopods, 231–238
Lebistes reticulatus, 160
Levene, H., 315–321
lice, 279
Limoniidae, 256
Limulidae, 116
Mallophaga, 279; speciation, 282
Malogolowkin, C., 300–314
mammalian evolution in the quaternary of southern and eastern Asia, 125–128
mating, behavior, 70; non-random, 92; randomness of, 245; between two strains of *Drosophila melanogaster*, 266–267; interspecific, 170–173; propensity, 176
Matthey, Robert, 379
Matthew's principle, 374–376
Mayr, Ernst, 371–372, 377, 381
measure, new of sexual isolation, 315–321
Mecoptera, 252
Megalaima, 156
Merrell, David J., 266–267
Michener, Charles D., 129–141
Micropoecilia parae, 160
Miller, A. K., 231–238
Millerella, 106
millidarwins, 55
Mollusca, 112
Moody, Paul A., 25–33
Moore, John A., 1–24
morphology, 335, 338; seasonal variation in, 330–343
mosquito-fish, 263
moths, saturniid, 129–141
multiple choice experiments, 67
mutation pressure, 140
Myalina, 113 (fig.)
natural selection, in experimental populations, 245
nautiloid cephalopods, 231–238; evolution in Tertiary, 231–238
Nautilus, 236 (fig.); *pompilius*, 235
Nematocera, 255 (fig.); diagram of classification of, 255

Nenninger, N., 382
Neuroptera, 252
Newell, Norman D., 103–124
niche, ecological, 281
Nummulites, 106
ortho-selection, 105
oysters, of *sellaeformis* stock, 34–50
Panthera tigris, 127
Parafusulina kingorum, 106
parallelism, 129; in the evolution of the Saturniid moths, 129–141
Parthenium argentatum, sources of genetic variation in, 358–368
Pavan, C., 300–314
Petersen, Björn, 269–278
Phoenicurus phoenicurus, 57
phoresy, 293
phyletic size increase, an important trend illustrated by fossil invertebrates, 103–124
phylogenetic tree, 130 (fig.)
phylogeny, 129
Pieris napi, 269–278; *n. adalwinda*, 269; *n. bicolorata*, 269; *n. bryoniae*, 277
Poecilia vivipara, 160
poikilothermic, 195
pollination systems as isolating mechanisms in angiosperms, 82–97
polymorphism, balanced, in *Drosophila montium*, 98; of color pattern, 239–251
polyploidy, 365
Pongo pygmaeus, 127
population change in primroses, 218
population size, 45
Portmann, A., 383
Primula vulgaris, 212
quantitative measurements of rates of evolution, 51–56
Rana catesbeiana, 23; *clamitans*, 23; *pipiens*, 1–24
randomness, of mating, 245
relicts, avian, 150–159
Rensch, B., 103, 178
reptiles, 195–211
Rhinoceros sondaïcus, 126; *unicornis kendengindicus*, 126
Ripley, S. D., 150–159
Rodentia, 25
role of sexual selection as an isolating mechanism in three species of Poeciliid fishes, 160–169
Rollins, Reed C., 358–368
Saturniidae, 129, 130
Sceloporus, 197
Schindewolf, O. H., 178
Sciara, 252
selection, 116, 212–230; habitat, 205; index, 262–265; index and its test of significance, 262–265; natural in experimental populations, 245; of an unfavorable gene-complex, 212–230; sexual in Poeciliid fishes, 160–169
serological evidence on lagomorph relationships, 25–33
sex chromosomes, 253
sex recognition, 167
sexual behavior and isolation in *Drosophila*, 67–81; dimorphism, 287; isolation, 267; a new measure of, 315–321; selection in fishes, 160–169
sibling species, of *Drosophila*, 300–314
Simplicidentata, 25
Simpson, G. G., 178–184, 376, 377
size, body, 116; increase, 103–124; progressive increase in, 50
Smith, Stanley G., 344–357
speciation, 188–193; allopatric, 92; evolutionary trends and distribution patterns in *Crepis*, 188–193; floral, 91; Mallophaga, 282; sympatric, 92, 290
Spieth, Herman T., 67
species, concept, 369–373; differences in wind-pollinated angiosperms, 85; non-dimensional, 371
Stebbins, G. Ledyard, 98–101, 188–193
Stebbins, R. C., 383
Stalker, Harrison D., 322–329, 330–343
Stenzel, H. B., 34–50
Stromer, E., 382
structure, reduction, 133; loss, 133
successional speciation in paleontology, 34–50
survival, egg and nestling, 57
sympatric speciation, 92, 290
Szarski, H., 382
Tapirus indicus, 126
taxonomic characters in plants, 83 (fig.)
temperature, embryonic, 3; effect on morphology, 335; preferred body, 203; preferred substratum, 203; tolerance, 20
tetracorals, 108
thermoregulation in reptiles, a factor in evolution, 195–211
thrushes, family size in, 57–66
trends, evolutionary, 188–193; in *Crepis*, 188–193; phylogenetic, 190
Turdoides, 156
Turdus ericetorum, 57; *merula*, 57
univoltinism, 271
variation, 366; genetic in *Parthenium argentatum*, 358–368; geographic, 271; of adaptive characters in *Rana pipiens* Schreber, 1–24; seasonal, 342; in clutch and brood-size, 61; in gene arrangement frequencies in *D. robusta*, 322–329; in morphology of *D. robusta*, 330–343; seasonal morphological, 330
Wheeler, Marshall R., 268
White, M. J. D., 252–261, 379–381
Woodringia, 236 (fig.)
Zimmermann, W., 178
Zosterops, 157